

In the Claims

Please amend Claims 1, 2 and 3, and add Claim 5 as follows:

1. (CURRENTLY AMENDED) A reformer for a mixture of low-pressure hydrocarbon gas and steam for fueling a proton-exchange membrane fuel cell with purified hydrogen from said mixture, comprising:

a cylinder loosely packed with a palletized catalyst with a cap at each end,

a fuel tube having an outflow end coupled to said cylinder for introducing said hydrocarbon gas into one end of said cylinder at low pressure,

a steam tube coaxial with said fuel tube for concurrently introducing said hydrocarbon gas and steam at a pressure higher than the pressure of said hydrocarbon gas at said one end of said cylinder, said steam tube having a tip at its outflow end that is gradually reduced in diameter over its length to form a truncated conical tip, said fuel tube having a substantially open end coincident with, said steam tube diameter, and

an outflow tube protruding outwardly from said cylinder at an end of said cylinder opposite said one end,

said steam tube being formed and positioned to draw said hydrocarbon gas into mixture with said steam, and to direct said steam in a path that is at an acute angle with the path of said fuel outflow, said fuel flow path lying substantially along the axis of said coaxial fuel and steam tubes, and that crosses said fuel path at an acute angle from all radial directions,

2. (CURRENTLY AMENDED) A hydrocarbon gas and steam reformer as defined in claim 1 wherein said fuel tube has a tip of given length at its outflow end that is reduced in diameter gradually along said given length.

3. (CURRENTLY AMENDED) A hydrocarbon gas and steam reformer as defined in claim 1 where said hydrocarbon gas is low pressure propane, stored as liquefied propane in a container on aboard recreational vehicles.

4. (ORIGINAL) A hydrocarbon gas and steam reformer as defined in claim 1 including a heat source around said cylinder for heating said catalyst.

5. (NEW) A method for mixing low pressure hydrocarbon gas with steam for fueling a proton-exchange membrane fuel cell with purified hydrogen from said mixture comprising: mixing low pressure hydrocarbon gas with steam at a pressure higher than said low pressure hydrocarbon gas, said mixing taking place at the outlet ends of two concentric tubes, wherein said mixing includes directing steam into said hydrocarbon gas at an acute angle to the path of said hydrocarbon gas flow on a plurality of radial paths.